

Abstract

An electrical power generating device having a plurality of ceramic composite cells, each cell having a cathode and an anode. A thermal shell in which the ceramic composite cells are stacked or arranged in electrical series and gas parallel surrounded by shock absorbing and insulating materials, respectively, is preferably included. Also provided are an exhaust fan, thermocouple sensors, a fuel supply, a programmable computer controller with user interface, and a container supporting the assembly and having passageways for providing air ingress and egress to the device, and power output terminals for the electrical power from the device.

Methods for manufacturing the ceramic composite cells are also provided, including a method for manufacturing stabilized zirconia and for use in the ceramic materials used within the ceramic composite cell.

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